

REMARKS

The Office Action mailed on November 14, 2003 is acknowledged. Applicant requests reexamination of the above-mentioned application in view of the remarks which follow.

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Oshima (U.S. Patent 5,747,875) in view of Kaindl (E.P. 0751570). The Examiner asserts that Oshima discloses a device comprising: a power part arranged on a power substrate, a logic part arranged on a circuit board having a recess in which the power part is located, the power substrate mounted on a cooling plate, wherein a first portion of the circuit board is mounted on a cooling plate. The Examiner concedes that Oshima does not disclose a second portion of the circuit board supporting a logic portion not mounted on the cooling plate.

The Examiner also asserts that Kaindl discloses an intelligent power module having first and second circuit board portion wherein a second portion of the circuit board supports at least one component forming the logic portion of the circuit board not mounted on the cooling plate. The Examiner further asserts that "it would have been obvious to one of ordinary skill in the art at the time the invention was made to separate the first and second portions, the second portion containing the logic parts not being mounted on the cooling plate as taught by Kaindl in the module assembly as taught by Oshima et al for the purpose of efficiently transferring heat from the power elements to the cooling plate, thereby allowing the power module to integrate power and control elements without overheating and to increase the efficiency of the module as a whole." The Applicant respectfully disagrees with the assertion that it would be obvious to combine Oshima and Kaindl in this manner.

Nevertheless, in order to clarify the claimed invention and expedite receiving a Notice of Allowance, Applicant has amended claim 1 to provide that the first portion of the circuit board is mounted on and **in thermal connection with** the cooling plate. Neither Kaindl nor Oshima teach this feature.

As stated by the Examiner, Kaindl teaches an intelligent module with a second portion not mounted on the cooling plate. Thus, Kaindl does not disclose mounting a second portion of the circuit board to the cooling plate in thermal connections.

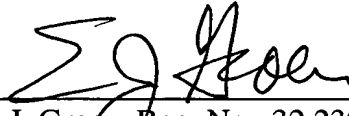
Conversely, Oshima only teaches a first portion of the circuit board mounted on the cooling plate but does not include a second portion supporting at least one component forming a logic portion not mounted on the cooling plate. Oshima also does not teach mounting the first portion of the circuit board to the cooling plate in a thermal connection. Referring to Figure 9 of Oshima, it is apparent that logic components IC1 and IC4 are mounted to the cooling plate 270 but thermally insulated there from by a coating of epoxy resin generally indicated by numeral 233. The epoxy resin 233 functions as an insulating layer. (See Column 12, lines 11-14). Accordingly, the logic components IC1 and IC4 are not in thermal connection with the cooling plates.

Neither Oshima nor Kaindl teach mounting the first portion of the circuit board to the cooling plate in thermal connection. Since claim 1 now requires that the portion of the circuit board be in thermal connection with the cooling plate, claim 1 includes limitations not disclosed in either Oshima or Kaindl. Accordingly, the applicant believes claim 1 to be in condition for allowance.

Appl. No. 09/980,384
Amdt. Dated April 14, 2004
Reply to Office Action of November 14, 2003

For all the foregoing amendments and remarks, Applicant believes that all of the pending claims are now in condition for allowance, and respectfully request early passage thereof. If necessary to effect a timely response, please consider this paper a request for an extension of time, and charge any shortages in fees, or apply any overpayment credits, to Baker & Daniels' Deposit Account No. 02-0387 (72262.90020). However, please do not include the payment of issue fees.

Respectfully submitted,

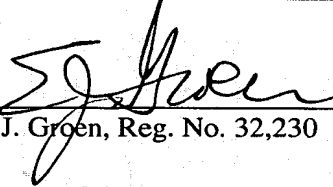


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April 14, 2004

Date



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